Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (withdrawn): A photochromic matrix layer composition comprising: a monomer mixture comprising a flexible hydrophilic dimethacrylate monomer, a hydrophobic monomer, a flexible hydrophobic multi(meth)acrylate monomer, and a urethane methacrylate oligomer, wherein the multi(meth)acrylate monomer contains three or more methacrylate groups or acrylate groups; and a photochromic dye.

Claim 2 (withdrawn): The composition of claim 1, comprising two or more hydrophobic monomers.

Claim 3 (withdrawn): The composition of claim 1, comprising two or more urethane methacrylate oligomers.

Claim 4 (withdrawn): The composition of claim 1, comprising two or more photochromic dyes.

Claim 5 (withdrawn): The composition of claim 1, wherein the flexible hydrophilic dimethacrylate monomer is a polyethylene glycol dimethacrylate, a urethane dimethacrylate, an epoxy dimethacrylate, or a polyester dimethacrylate.

Claim 6 (withdrawn): The composition of claim 1, wherein the flexible hydrophilic dimethacrylate monomer is polyethylene glycol (400) dimethacrylate.

Claim 7 (withdrawn): The composition of claim 1, wherein the flexible hydrophilic dimethacrylate monomer is present at a concentration of about 20 weight percent to about 50 weight percent of the monomer mixture.

Claim 8 (withdrawn): The composition of claim 1, wherein the hydrophobic monomer is a monomethacrylate, a dimethacrylate, a trimethacrylate, or combinations thereof.

Claim 9 (withdrawn): The composition of claim 1, wherein the hydrophobic monomer is isobornyl methacrylate, 1,12-dodecanediol dimethacrylate, tridecyl methacrylate, or combinations thereof.

Claim 10 (withdrawn): The composition of claim 1, wherein the hydrophobic monomer is present at a concentration of about 5 weight percent to about 50 weight percent of the monomer mixture.

Claim 11 (withdrawn): The composition of claim 1, wherein the flexible hydrophobic multi(meth)acrylate monomer is bis(tri methylol propane)tetramethacrylate, an alkoxylated trimethylolpropane trimethacrylate, an alkoxylated bis(trimethylolpropane)tetramethacrylate, a urethane methacrylate with three or more methacrylate groups, an epoxy methacrylate with three or more methacrylate groups, a polyester methacrylate with three or more methacrylate groups, or mixtures thereof.

Claim 12 (withdrawn): The composition of claim 1, wherein the flexible hydrophobic multi(meth)acrylate monomer is bis(trimethylolpropane)tetraacrylate.

Claim 13 (withdrawn): The composition of claim 1, wherein the flexible hydrophobic multi(meth)acrylate monomer is trimethylolpropane trimethacrylate.

Claim 14 (withdrawn): The composition of claim 1, wherein the flexible hydrophobic multi(meth)acrylate monomer is present at a concentration of about 5 weight percent to about 20 weight percent of the monomer mixture.

Claim 15 (withdrawn): The composition of claim 1, wherein the urethane methacrylate oligomer is a polyether urethane dimethacrylate, a polyether urethane trimethacrylate, or mixtures thereof.

Claim 16 (withdrawn): The composition of claim 1, wherein the urethane methacrylate oligomer is present at a concentration of about 15 weight percent to about 60 weight percent of the monomer mixture.

Claim 17 (withdrawn): The composition of claim 1, wherein the photochromic dye is CNN7, CNN8, CNN9, Reversacol Ruby Red, Reversacol Corn Yellow, or mixtures thereof.

Claim 18 (withdrawn): The composition of claim 1, wherein the photochromic dye is present at a concentration of about 0.002 weight percent to about 0.15 weight percent of the composition.

Claim 19 (withdrawn): The composition of claim 1, containing 2, 3, 4, or 5 photochromic dyes.

Claim 20 (withdrawn): The composition of claim 19, wherein each of the dyes are independently present at a concentration of about 0.002 weight percent to about 0.15 weight percent of the composition.

Claim 21 (withdrawn): The composition of claim 1, further comprising a polymerization initiator.

Claim 22 (withdrawn): The composition of claim 21, wherein the polymerization initiator is Irgacure 819, Irgacure 2020, or Perkadox AMBN.

Claim 23 (withdrawn): The composition of claim 21, wherein the polymerization initiator is present at a concentration of about 0.06 weight percent to about 2.0 weight percent based on the weight of the composition.

Claim 24 (withdrawn): The composition of claim 1, characterized by having a viscosity of about 10 cps to about 24,000 cps at 25° C.

Claim 25 (withdrawn): The composition of claim 1, further comprising a fixed dye.

Claim 26 (withdrawn): The composition of claim 25, wherein the fixed dye is Sudan Blue 670, Keyplast Magenta M6B, Keyplast Violet 3B, or Keyplast Oil Violet IRS.

Claim 27 (withdrawn): The composition of claim 1, wherein: the flexible hydrophilic dimethacrylate monomer is polyethylene glycol (400) dimethacrylate; the hydrophobic monomer is isobornyl methacrylate, 1,12-dodecanediol dimethacrylate, or tridecyl methacrylate; the flexible hydrophobic multi(meth)acrylate monomer is trimethylolpropane trimethacrylate; and the urethane methacrylate oligomer is a polyether urethane dimethacrylate or a polyether urethane tri methacrylate.

Claim 28 (withdrawn): A tie coating composition comprising a methacrylate monomer, a (meth)acrylated oligomer with a polycarbonate backbone, a urethane methacrylate oligomer, and a solvent.

Claim 29 (withdrawn): The composition of claim 28, comprising two or more methacrylate monomers.

Claim 30 (withdrawn): The composition of claim 28, comprising two or more urethane methacrylate oligomers.

Claim 31 (withdrawn): The composition of claim 28, wherein the methacrylate monomer is isobornyl methacrylate, tetrahydrofurfural methacrylate, a polyethyleneglycol dimethacrylate, or methylmethacrylate.

Claim 32 (withdrawn): The composition of claim 28, wherein the methacrylate monomer is tetrahydrofurfural methacrylate.

Claim 33 (withdrawn): The composition of claim 28, wherein the methacrylate monomer is present at a concentration of about 5 weight percent to about 25 weight percent of the nonvolatile components of the composition.

Claim 34 (withdrawn): The composition of claim 28, wherein the (meth)acrylated oligomer with a polycarbonate backbone is Sartomer CN9001.

Claim 35 (withdrawn): The composition of claim 28, wherein the (meth)acrylate oligomer with a polycarbonate backbone is present at a concentration of about 20 weight percent to about 50 weight percent of the non-volatile components of the composition.

Claim 36 (withdrawn): The composition of claim 28, wherein the urethane methacrylate oligomer is a dimethacrylate or a tri methacrylate.

Claim 37 (withdrawn): The composition of claim 28, wherein the urethane methacrylate oligomer is a polyether urethane dimethacrylate or a polyether urethane trimethacrylate.

Claim 38 (withdrawn): The composition of claim 37, wherein the polyether urethane dimethacrylate is present at a concentration of about 20 weight percent to about 50 weight percent of the non-volatile components of the composition.

Claim 39 (withdrawn): The composition of claim 37, wherein the polyether urethane trimethacrylate is present at a concentration of about 15 weight percent to about 40 weight percent of the non-volatile components of the composition.

Claim 40 (withdrawn): The composition of claim 28, wherein the solvent comprises a ketone.

Claim 41 (withdrawn): The composition of claim 28, wherein the solvent is a solvent mixture.

Claim 42 (withdrawn): The composition of claim 28, wherein the solvent is a mixture of isopropyl alcohol and methyl ethyl ketone.

Claim 43 (withdrawn): The composition of claim 28, further comprising a polymerization initiator.

Claim 44 (original): A method of preparing a photochromic polycarbonate lens, the method comprising: providing a polycarbonate lens blank; applying a tie coating composition to the lens blank, the tie coating composition comprising a methacrylate monomer, a (meth)acrylated oligomer with a polycarbonate backbone, a urethane methacrylate oligomer, and a solvent; allowing the solvent to evaporate to form a tie

coating layer; partially polymerizing the tie coating layer; applying a photochromic matrix layer composition to the tie coating layer, the photochromic matrix layer composition comprising a monomer mixture comprising a flexible hydrophilic dimethacrylate monomer, a hydrophobic monomer, a flexible hydrophobic multi(meth)acrylate monomer, and a urethane methacrylate oligomer, wherein the multi(meth)acrylate monomer contains three or more methacrylate groups or acrylate groups; and a photochromic dye; and polymerizing the tie coating layer and the photochromic matrix layer composition to prepare a photochromic polycarbonate lens.

Claim 45 (original): The method of claim 44, wherein the applying a tie coating composition step comprises flow coating, dip coating, or spin coating.

Claim 46 (original): The method of claim 44, wherein the applying a tie coating composition step comprises spin coating.

Claim 47 (original): The method of claim 44, wherein the tie coat layer is about 8 microns to about 16 microns in thickness.

Claim 48 (original): The method of claim 44, wherein the partially polymerizing step comprises exposing the tie coating layer to UV light of about 600 mJ/cm^2 to about 2000 mJ/cm^2.

Claim 49 (original): The method of claim 44, wherein the partially polymerizing step comprises exposing the tie coating layer to UV light of about 800 mJ/cm^2 to about 1300 mJ/cm^2.

Claim 50 (original): The method of claim 44, comprising applying two or more tie coating layers to the lens blank.

Claim 51 (previously presented): The method of claim 44, further comprising drying the lens blank by exposure to a radiant IR source, prior to the step of applying the tie coating layer.

Claim 52 (previously presented): The method of claim 44, further comprising drying the lens blank by heating to about 120° F. (49° C.) to about 200° F. (93° C.) prior to the step of applying the tie coating layer.

Claim 53 (original): The method of claim 52, wherein the heating step is performed in a dry air atmosphere or a nitrogen atmosphere.

Claim 54 (original): The method of claim 44, further comprising heating the photochromic matrix composition to about 120° F. (49° C.) to about 150° F. (66° C.) prior to the step of applying the photochromic matrix layer composition to the tie coating layer.

Claim 55 (original): The method of claim 44, further comprising placing the lens blank in a mold after the partially polymerizing step and prior to applying the photochromic matrix layer, wherein the mold contains a gasket or tape having a liquid tight seal when placed on the concave side of the mold.

Claim 56 (previously presented): A method of preparing a photochromic polycarbonate lens, the method comprising: providing a polycarbonate lens blank; applying a tie coating composition to the lens blank, the tie coating composition comprising a methacrylate monomer, a (meth)acrylated oligomer with a polycarbonate backbone, a urethane methacrylate oligomer, and a solvent; allowing the solvent to evaporate to form a tie coating layer; partially polymerizing the tie coating layer; providing a mold; applying a photochromic matrix layer composition into the mold, the

photochromic matrix layer composition comprising a monomer mixture comprising a flexible hydrophilic dimethacrylate monomer, a hydrophobic monomer, a flexible hydrophobic multi(meth)acrylate monomer, and a urethane methacrylate oligomer, wherein the multi(meth)acrylate monomer contains three or more methacrylate groups or acrylate groups; and a photochromic dye; contacting the tie coating layer and photochromic matrix layer; and polymerizing the tie coating layer and the photochromic matrix layer composition to prepare a photochromic polycarbonate lens; and removing the photochromic polycarbonate lens from the mold.

Claim 57-59 (canceled)

Claim 60 (new): The method of claim 44, wherein the solvent comprises a ketone.

Claim 61 (new): The method of claim 60, wherein the solvent is a solvent mixture.

Claim 62 (new): The method of claim 60, wherein the solvent comprises a mixture of isopropyl alcohol and methyl ethyl ketone.